Amendments to the Claims

1. (Original) A method of depositing a layer over a substrate, comprising:

providing a substrate within a high density plasma reaction chamber;

providing at least one compound having a heavy-hydrogen isotope substituent into the reaction chamber;

generating a high density plasma within the reaction chamber; and

chemical vapor depositing a layer over the substrate, the layer incorporating at least a portion of the at least one compound.

2. (Original) The method of claim 1 wherein the heavy-hydrogen isotope is deuterium.

3. (Original) The method of claim 1 wherein the at least one compound is selected from the group consisting of SiD_xH_{4-x}, $Si_2D_yH_{6-y}$, PD_zH_{3-z}, $SiCl_2DH$, $SiCl_2D_2$, $SiO_4C_8D_qH_{20-q}$, DH, D_2, where x=1-4, y=1-6, z=1-3 and q=1-20.

4. (Original) The method of claim 1 wherein the layer comprises an oxide material.

5. (Original) The method of claim 1 wherein the layer is simultaneously deposited and etched during the depositing.

6. (Original) The method of claim 1 wherein the depositing produces a substantially planar surface.

7. (Original) The method of claim 1 wherein the at least one compound is comprised by a mixture, the mixture further comprising at least one of O_2 and O_3.

Claims 8-27 (Canceled).

28. (Withdrawn) A method of controlling an overall deposition rate during high density plasma chemical vapor deposition comprising providing at least one compound comprising a heavy-hydrogen isotope during the deposition, the overall deposition rate being defined by a ratio of deposition rate of a material relative to a simultaneous rate of etch of the material.

29. (Withdrawn) The method of claim 28 wherein the at least one compound is provided in a sputtering gas.

30. (Withdrawn) The method of claim 29 wherein the at least one compound is selected from the group consisting of diatomic hydrogen having at least one atom selected from D and T.

31. (Withdrawn) The method of claim 29 wherein the deposition occurs across a surface of a wafer and wherein the overall deposition rate at a central point of the surface of the wafer is substantially equivalent to an overall deposition rate at a point at an edge of the surface of the wafer.

32. (Withdrawn) The method of claim 31 wherein the overall deposition rate at the central point is substantially equivalent to an overall deposition rate that occurs at substantially all points along a line between the center point and the point at the edge of the surface of the wafer.

33. (Withdrawn) The method of claim 29 wherein the deposition occurs across a surface of a wafer and wherein the overall deposition rate at any point across the surface of the wafer is substantially equivalent to an overall deposition rate at every other point across the surface of the wafer.

34. (Withdrawn) The method of claim 29 wherein the deposition comprises deposition of an insulative material over a substrate having one or more gaps, the deposition filling the one or more gaps with the insulative material to form filled gaps having a substantial absence of voids.

35. (Withdrawn) The method of claim 29 wherein the overall rate of deposition is decreased relative to a corresponding overall deposition rate that occurs utilizing the ^{1}H form of the at least one compound under otherwise identical deposition conditions.

Claims 36-38 (Cancelled) .

39. (Original) A method of providing an improved deposition rate uniformity comprising depositing a material over a surface in the presence of at least one gas selected from the group consisting of D_2, HD, DT, T_2 and TH, the depositing occurring at an overall deposition rate defined by a ratio of deposition of the material relative to a simultaneous rate of etch of the material, the overall deposition rate having a degree of variance across the surface which is measurably improved relative to a corresponding degree of variance that occurs during deposition utilizing H_2 under otherwise substantially identical conditions.

40. (Original) The method of claim 39 wherein the depositing comprises high-density plasma deposition.

41. (Original) The method of claim 39 wherein the degree of variance utilizing the at least one gas is improved at least about 18% relative to the corresponding degree of variance that results utilizing mass one H_2.

42. (Original) The method of claim 39 wherein the depositing comprises high-density plasma deposition onto a substrate utilizing a high frequency bias power of less than about 5 kW.

43. (Original) The method of claim 39wherein the surface is comprised by a 200 mm diameter wafer.

44. (Original) The method of claim 39 wherein the surface comprised by a 300 mm diameter wafer.